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ABSTRACT

The field of the present invention relates generally to a microstructure apparatus which may be used in a high-throughput screening context to monitor the rate of reaction of an enzyme with its substrate in cases where the product of the reaction has an altered net charge. For example, the systems and methods disclosed herein may be used to detect the activity of phosphatase enzymes, proteases and kinases on charged peptide substrates. The microstructure devices of the present invention comprise a plurality of microstructures, wherein each microstructure comprises a capture matrix located between two electrodes.